DOCUMENT RESUME

ED 467 937 IR 021 457

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TITLE Learning about Online Learning in a Dual Sector University: Reflections, Issues and Challenges.

PUB DATE 2001-12-00

NOTE 10p.; In: Meeting at the Crossroads. Proceedings of the Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education (ASCILITE 2001) (18th, Melbourne, Australia, December 9-12, 2001); see IR 021 433.

PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)

EDRS PRICE EDRS Price MF01 Plus Postage. PC Not Available from EDRS

DESCRIPTORS Computer Uses in Education; Course Evaluation; *Experiential Learning; Foreign Countries; Higher Education; *Instructional Design; *Online Courses; *Problem Based Learning; Student Surveys; Teaching Methods; *Web Based Instruction

IDENTIFIERS Victoria University of Technology (Australia)

ABSTRACT

This paper reports on an evaluation of the Online Learning in Tertiary Education (OLTE) subject in the Graduate Diploma in Tertiary Education program at Victoria University of Technology (Australia). The subject, which commenced this year, used both Problem-Based Learning (PBL) and Action Learning (AL) teaching methods. In addition, students undertook a minor negotiated project in which they used online learning within a module and/or subject in which they were teaching. Face-to-face contact was reduced provided students engaged in the online forum for the subject, thereby providing some of the flexibility students wanted. In addition to obtaining student feedback for the subject, the evaluation focused on the use of the mixture of teaching methods, student use of the online forum to extend their face-to-face sessions and the students' capacities to undertake the negotiated project. While the semester program and the support students need to complete their project work need to be improved, there is evidence students found the PBL intensive program productive. Further, the students' use of the online forum demonstrated its potential, especially towards then end of the subject, but its use must be more aligned with the learning outcomes for the course. (Contains 12 references.) (Author/MES)

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LEARNING ABOUT ONLINE LEARNING IN A DUAL SECTOR UNIVERSITY: REFLECTIONS, ISSUES AND CHALLENGES

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Abstract

The paper reports on an evaluation of the Online Learning in Tertiary Education (OLTE) subject in the Graduate Diploma in Tertiary Education program at Victoria University of Technology. The subject, which commenced this year, used both Problem-based Learning (PBL) and Action Learning (AL) teaching methods. In addition, students undertook a minor negotiated project in which they used online learning within a module and/or subject in which they were teaching. Face to face contact was reduced provided students engaged in the online forum for the subject thereby providing some of the flexibility students wanted. In addition to obtaining student feedback for the subject, the evaluation focused on the use of the mixture of teaching methods, student use of the online forum to extend their face-to-face sessions and the students' capacities to undertake the negotiated project. While we must improve the semester program and the support students need to complete their project work, there is evidence students found the PBL intensive program productive. Further, the students' use of the online forum demonstrated its potential, especially towards then end of the subject, but its use must be more aligned with the learning outcomes for the course.

Keywords

problem based learning, action learning, online forum, evaluation

Introduction

In 2001, the Online Learning in Tertiary Education subject commenced with a small cohort of 10 students. The subject, which is an elective in the Graduate Diploma in Tertiary Education course at the university, was initially designed to provide students with the knowledge and skills necessary to critically develop the use of online learning in their teaching, in line with principles of effective teaching in tertiary education (Biggs, 1999; Prosser & Trigwell, 1999). The subject was traditional in the sense that it entailed semester long project work. It was unusual in that a mixture of problem based learning (PBL) and action learning (AL) teaching methods was used and the PBL was used in an intensive three-day program. In addition, we intentionally reduced student face-to-face contact time for the AL meetings by allowing students to use an online forum to extend class discussions thereby being more inclusive of students who had work commitments which conflicted with the subject's face-to-face meetings. We wanted to increase participation and reduce the isolation of the students (Harasim, Starr, Teles, & Turoff, 1995)

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The Online Learning in Tertiary Education (OLTE) subject

This OLTE subject deals with the design, development, use and evaluation of online learning in tertiary education. Importantly, we wanted our students to use online learning with students in their teaching programs and to critically reflect on that experience. While we wanted students to develop a basic knowledge of WebCT and MS FrontPage, the two main Web based tools used in the subject, we originally wanted to expose students to other applications such as (BSCW, NetMeeting, Photoshop etc). However, we designed the subject for students to learn about effective online pedagogy and critical reflection of their online teaching practices rather than to learn how to use various Web related applications. Still, at times, both were intertwined.

The following assumptions underpinned the curriculum of the subject:

1. Learning to teach online requires both developing skills in the use of Web related software and developing expertise in using the online environment to support student learning – a blend of technology and pedagogy (Hart, 2000).
2. Problem based learning fosters the development of information seeking skills, critical thinking, collaboration and problem solving skills (Boud & Feletti, 1997; Oliver & McLoughlin, 1999) that are fundamental to staff learning about online learning.
3. Learning activities that involve teachers working on their own courses, subjects or modules are more effective than those based on "pretend" courses. An Action learning approach where each participant is working on his or her own "live" courses is likely to be effective (McGill & Beaty, 1993).
4. Experience in using an online learning environment as a student is a prerequisite for using it as a teacher – a key to using online learning effectively, and teaching in general, is to focus on what the student does (Biggs, 1999; Checkering & Ehrmann, 1993; Housego & Freeman, 2000).

Consequently, we developed a curriculum that used problem-based learning and instructional techniques in a February intensive program, after which students undertook a negotiated project within an Action Learning framework throughout the semester.

Teaching Methods

February Intensive Program – Problem Based Learning

A three-day intensive problem (or practice)-based (PBL) program (Boud & Feletti, 1997) introduced students to the content of the subject. The PBL program focused on a design, development and communication problem related to online learning.

The general pattern for each day is set out below. WebCT was used to communicate the information found (bibliographic details and brief summary), to discuss issues raised before and after the second face-to-face meeting and to communicate a summary of the conclusions reached by the group. Based on the approach used by Pross (2000), the five-step PBL sequence, which students followed on each day of the intensive program, is summarised below:

Step 1: Students read the problem, which was also posted in WebCT prior to the session. We advised that one person in the group read the problem aloud prior to step 2.

Step 2: Students conducted a brainstorming session. The group considered the problem, identified learning issues and agreed on what information was needed. We suggested students answer the following questions:

1. What do you know about this problem?
2. What do you need to find out about the problem?
3. What are the significant issues (technical, social, teaching, learning, economic and political)? Think holistically.
4. What do you need to learn?
5. Where will you look for the information you need?
6. What are your priorities? What is most important to learn?

Step 3: The group identified essential issues all group members would investigate and specific issues one member in the group investigated on behalf of the whole group. Step 3 concluded with the allocating of tasks to people within the group.

Step 4: Reading, research and preparation - during the study session after lunch, group members use the resources provided to locate information relevant to the problem. During this session, students could approach several staff members who acted as "experts" or "information sources".

Step 5: Return and reporting - towards the end of the study session, each group reported their findings in a face-to-face meeting and then each student was required to enter a summary (bibliographic details and brief summary of significant issues and possible solution to the problem) into the WebCT Discussion folder set up for the day's problem.

Steps 1-3 were scheduled for the morning of each day of the intensive program, while steps 4-5 were scheduled for the afternoon of each day. The authors of this paper acted as facilitators for one of the groups. The PBL sessions took place at the Sunbury campus in study areas set up for staff to use as flexible learning areas. Consequently, students were provided pleasant working conditions and ample access to print based and electronic resources, including a CD-ROM of readings and tutorials for using WebCT.

Intensive Program – Instructional Sessions

The first two hours of each day of the intensive program were used for instructional workshops on using WebCT and MS FrontPage. The first session introduced our students to using WebCT as a student. The second session introduced students to using WebCT as a designer (and teacher). It also introduced students to using MS FrontPage. The last session focused on using the chat and online discussion tools of WebCT as a teacher.

Semester Program: Action Learning

After the three-day intensive program, an Action Learning approach was used throughout the semester in order to allow students to discuss significant issues related to their negotiated project, which focused on the design, development and use of online learning in a subject and/or module.

Students met in six two-hour meetings throughout the semester. Prior to each meeting, they were required to provide a small progress report of their work in the online forum. They could extend and/or further clarify their report at the face-to-face meeting. Primarily, the AL sessions were used to discuss issues arising out of the student's project work in order that the group may suggest strategies individual students could use to solve their problems. Students used the session to develop a plan for solving their problems. On occasions we conducted a small workshop on a specific technical and/or pedagogical aspect of the project work that a student had requested.

Participants

While the demand was high, we only enrolled ten students in the subject: Eight staff teaching in the TAFE division, one staff member from the Human Resource Department and one staff member from a university centre that provides multimedia support to both university and external clients.

Assessment

Summative assessment for this subject was based on the design, development and evaluation of a segment of a subject or module that uses the World Wide Web for delivery of materials and/or for communication between teacher and students. The assessment included marks allocated to participation in the face-to-face sessions and the online discussion as well as a final project report.

WebCT Tools Used to Support the Teaching of OLTE

WebCT was used to support the teaching of the OLTE subject. An online calendar was used to identify key dates and meeting locations. As already mentioned, information about the course and resources used in the PBL sessions was provided online and on CD-ROM that could be accessed from individual

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Web pages and/or used as a stand alone resource. Students had access to a private email tool and the discussion forum was used throughout the entire subject. Finally, all the surveys in the subject were conducted online and students submitted their work through an assignment drop box. Student work was to be corrected and sent back to them as an email attachment. Marks and comments were to be placed in the online grade book.

Evaluation Methodology

The subject evaluation was designed to evaluate the implementation of the new curriculum using techniques most academics would employ as part of sound teaching practices.

Key Evaluation Questions

During the semester, we wanted to answer the following evaluation questions.

1. How will students relate to the use of problem-based learning during the intensive program? How prepared will students be for the semester program, especially the project work?
2. Will students have difficulty adjusting to the Action Learning approach after experiencing problem-based learning?
3. What significant issues will students bring to the face-to-face meetings during the Action Learning sessions? Will the combination of practical workshops and Action Learning sessions cover a range of topics associated with online learning?
4. What projects will students choose? Will they achieve the projects they choose? Are the tutors able to provide the practical support required for the subject?
5. How effective was the combination of face-to-face and online discussion in providing students with greater flexibility? Did students use the online forum in ways outlined in the curriculum materials?
6. How will staff work patterns change to support the course? Will staff be able to support students? What problems related to academic work will arise?

Data Collection and Analysis

Table 1 summarises the data collection and analysis techniques used to evaluate the OLTE subject. Students were initially surveyed using a modified version of the ICT skills and Access instrument developed by Oliver and Towers (2000). Simple online feedback surveys were administrated at the end of the February intensive program and the semester. There is increasing interest in analysing student contributions to an online forum (McKenzie & Murphy, 2000), we were interested in how participants used online discussion to support each other and extend their dialogue about the topics under discussion.

Method	Purpose	Analysis
Online surveys	ICT skills and Access survey at the beginning of the course.	Identification of potential gaps in IT skills and access
	Feedback survey at the end of the intensive PBL session	Identification of issues and problems with PBL sessions
	Feedback survey at the end of the semester.	Identification of problems Student perception of their learning outcomes
Attendance	Student attendance at face-to-face sessions was recorded. Observations of contributions were made.	Identify attendance and observe student contributions.
Online forum	Online discussion list was recorded.	Classification of purpose and contribution to online discussion of topics.
Changes during the subject	Key changes to the subject throughout subject were noted	Reflect on construction of new contexts
Interviews and phone contact.	Students who withdrew from the course were interviewed.	Identify key reasons for leaving subject
Assessment tasks	Student projects were retained and used as data.	Search of evidence of students achieving a ritical perspective of using online learning.

Table 1: Data collection and analysis techniques

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Findings, Critique and Future Directions of OLTE Subject

Table 2 provides a summary of the findings of the subject evaluation together with suggestions for improving it. Further discussion of some of the findings, organised under the intensive program and semester program headings, follows the table.

Q.No	Summary of findings and issues	Future action
1	Positive feedback for PBL sessions. Comprehensive understanding of issues. Problems with group dynamics, role of facilitator, closure of each PBL activity and the timing of the intensive program.	Improve facilitator preparation. Set aside 30 min session for online reporting (needs lab access at the end of the day) Set intensive program one week earlier.
2	Irregular attendance at face-to-face meetings and submission of progress reports.	Allocate marks to submission of regular online reports.
3	IT knowledge and skills dominated semester program Narrow range of topics addressed throughout semester.	Assess students IT capabilities. Develop more targeted and appropriate tutorials for building online materials. More structured reading list
4	While most students proposed a manageable project, few projects were completed within the semester.	Better manage negotiation process for student project. Further reduce scope of student project.
5	Engagement with the literature and each other less than expected. Reduced face-to-face did not lead to significantly more online discussion.	More structured reading list Greater use of readings within discussion forum Use online discussion to complete face-to-face activities.
6	Co-teacher did not participate in online forum and assessment as expected.	Better preparation for co-teachers. Alternate online moderator's role. Establish agreement on academic work patterns. Maintain weekly phone contact.

Table 2: Summary of findings and planned changes to the OLTE subject

The Intensive Program

Overall, students found the intensive program enjoyable and PBL productive. There were some initial problems with dynamics of one group, which after some minor changes were made there were no further problems. Students found the engagement of the problem-based learning cycles demanding but worthwhile.

> "It was very enjoyable, I was pleased that i added so much to my knowledge base re the topic. I look forward to the balance of the semester! Thanks!"

The intensive program took place in the right learning space.

> "Being able to bounce ideas off other people and the facilitator. The atmosphere on the campus and building 4 I found particularly stimulating."

However, the TAFE teachers had just started their semester program and so next time we need to schedule the intensive program a little earlier.

> "I generally found the sessions informative and rewarding but difficult to sustain a high level of participation when scheduled at this time of the year with classes about to start, or already started."

Importantly for us, students appeared to now understand online learning is more than simply placing lectures and/or resources online.

> "The need to be careful about how the online environment is used, and not simply as a dumping ground for lecture notes. Constructive alignment, and use of online as an adjunct worked best."

Another student added:

> "The need for a clear understanding of what you want to achieve, consideration of what is appropriate for on-line and the need for consistency across a subject area. Ideally, on line is not a replacement for other learning interactions but a support or adjunct."

Still, another student identified the value of working in the group.

> ".... PBL has exposed me to some broad based theories on principal teaching practices. As well the benefits of the discussions and feedback by the group."

Being new to PBL, some students wanted the facilitator to act as domain expert rather than simply provide information on the PBL learning cycle. They would have preferred fewer questions in analysing each problem and/or fewer problems. As we considered, we need at least three problems, one each on design, development and communication, we may need to make the PBL cycle more focused in order to lessen the impact of the following problems.

> "Lack of time. Perhaps fewer problems would have been better."
> "More intervention by mediator [PBL facilitator]. Fewer problems to give more time to focus on process."

The significant problem that was to stay with the class throughout the whole semester was obtaining the correct balance between learning about pedagogy and technology.

> "The morning sessions served largely to illustrate the breadth of my lack of knowledge of the software involved in on-line learning. Front Page, WebCT, Acrobat etc. Tangents inspired by questions from competent users only served to take up time and further mystify. Realistically, it made me question whether I can come up to sufficient speed in the software to do something meaningful in the subject. It was a major distraction and unsettling. Given that the afternoon sessions were given over the "pedagogy" & issues involved on line learning, the mornings would have been better spent in more structured tutorials on the software, with competent users allocated some other task. Three 3 hours sessions would have gone a long way to de-mystifying."

The ICT survey identified three people who were novice ICT and Web users whereas most of the students were completing the subject because they wanted to know more about online pedagogy rather than technology. However, in retrospect, we should have split the group and provided more support to the novices as they had difficulty developing those skills alone. Our lack of action had ramifications for the semester program.

Semester Program

Only seven of the ten students participated in the semester program. However, when interviewed, the students dropped out of the subject because of either family problems and/or increased work commitments. Only two students were in a position to complete their project at the end of the semester because of similar problems. Most students appear to need longer than a semester to complete the project work, which indicates we need to monitor and develop projects that are more limited in the ICT skills needed to complete them. Furthermore, the supervisor may need to receive a more structured plan for the student to complete the project. There is a balance here of providing the student with enough structure and support but also allowing the student to take control of their own project work.

The semester program was noted for the irregular attendance of students at the face-to-face meetings and, initially, low levels of contributions to the discussion forum. During the intensive program, the whole group decided to reduce the face-to-face meetings to six two-hour sessions but with the expectation that students (and teaching staff) would devote six hours contributing to the online forum. Later in the semester, when it was observed some people were unable to attend the

face-to-face sessions, we allowed for an additional presence in the online forum to compensate for the non-attendance at the face-to-face sessions.

Throughout the semester, the following strategies were taken in order to increase use of the online discussion for the subject:

1. Teacher highlighted student postings that illustrated effective use of online forum
2. One teacher maintained a significant online presence at the beginning of the semester program.
3. Teacher sent private email to individual students enticing them to participate
4. Later in the semester a teacher phoned people who were not attending the face-to-face meetings or posting items to the online discussion.
5. Posting of an issue and/or paper requesting a student response (e.g. no significant difference Web site)
6. Teacher extended a face-to-face activity online (e.g. SWOT analysis of face-to-face and online learning) and requested students to respond in some way online.
7. Teacher reminded students that participation on and off line was assessed.

Still, it was difficult to get both the second author of this paper and all the students to participate in the online forums. There were technical problems.

> "Hi Everyone As one of the main culprits I will tell you that Murphy's law has a lot to do with it!!!! My computer's hard drive crashed at home. The laptop is not net connected as I was off sick for nearly a week (with the lap top) when IT came to do it, so now I'm bottom of queue. The computer at work is fine (touch wood!), but I have been at meetings every non-teaching minute dealing with relocation of marketing to Sunshine, work plans, my reclass and other union stuff.!!!!!"

Some students identified the tendency to procrastinate over our responses, which often results in no response at all.

> "Threats and Intimidation? Just kidding, but seriously I think it may be a bit of both of what you said, and the other idea I had was that it maybe it's too easy and people just say to themselves "well I'll do that a little later, after I do this other thing" and then they never get around to doing it because 'stuff' got in the way. My only other suggestion is that you could do what I do in my own classes when assignment deadlines and requests are not met start removing marks."

Another student identified the right of people to observe others but not participate in the learning activity. The student also acknowledges that writing a reply to a posting can be hard work, especially as your mistakes and immature comments are public for the whole semester.

> "Speaking from a personal point of view, the problems I have found are probably combined - Its very easy to go in and see what's going on and make sure that you are keeping abreast of what others are doing, but in order to produce some work you must have the time to actually sit and think and work through some issues and do some research - and this part is harder. I'm sure its all about organisation and also perhaps letting go of some thoughts to the discussion. If a student is unsure of his/her abilities then its just a matter of giving themselves time until a problem can be thought through in order not to appear too silly - unfortunately for that student time is usually a luxury that they cannot afford. Motivation is the key and I think the up side is that by providing deadlines and reminders, the student usually responds and rises to the challenge."

The second author of the paper also did not post responses to the discussion list for similar reasons. Consequently, we will need to develop a common approach to illustrating sound online teaching practices prior to commencing the subject next year. Towards the end of the semester, students used the online forum to seek support from their peers and to herald their achievements as in the following case.

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> "I've actually released my on-line course to the students last week. Hip-hip hooray for me! Met them last night and got good response."

Students readily provided support and feedback to each other

> "[Student's name], I think your survey seems to cover most of the major issues. It looks great. One thing I did think about was that if the students were positive about the online delivery, then maybe we could ask them which of their subjects they felt would be best suited in their opinion to online delivery."

In the following case, people were starting to show the signs of wear as they struggled to complete their project.

> "Hope you're not all overloaded with as much work as I am at the moment. Hard to find time to have a life. Please find attached my progress report. I hope others have more success than I have had."

> "[Student's name], I wouldn't be too discouraged, as this response from your students appears to be fairly typical (take our class for example). I think it's harder for us as teachers when we put "the old heart and soul" into a project and it doesn't meet our expectations."

> "I agree with [students' name] a hundred percent - we are not to be blamed for a project's failure. As a matter of fact, there is no such thing as a failed project. If it did not meet its objective the first time, one should always reflect back, do some analysis, and then do some corrective actions to rectify them. ..... By the looks of it, you are into that process already, you know why it did not do so well initially, and you have some corrective actions in the offing."

From a teacher's perspective, it was nice to see a willingness to move on and improve one's work represented in the text, although it was unlikely the sentiment was solely due to the student's experience in the subject.

Still, putting aside the problems associated the negotiation of the student projects for a moment; clearly staff in the TAFE division had difficulties undertaking any additional studies. The introduction of the Learnscope flexible learning professional development program provided some of our students with computers but insisted students participate in their program irrespective of other studies they were undertaking. It again added to the students' workload, although clearly the students with few ICT skills would have benefited form participation in the professional development activities.

The more significant problem was the lack of university wide practical support for staff, which was exacerbated through the coincidental introduction of training packages into the TAFE programs. Affected students were required to revise the teaching program and develop new teaching materials. Undertaking an online project in addition to this work proved too much for some. TAFE managers need to develop more effective ways of supporting staff who undertake part time study at the university, especially given the priority of flexible learning within the TAFE sector. As one student stated: "My issue for next week - getting it done! No more, no less". The teaching team will need to provide greater support to the students both on and off-line next year.

Conclusions

The use of problem-based learning in the February intensive program provided students with a good start to the issues related to online learning but did not prepare them for the practical aspects of building online learning into the subjects they teach. The instructional sessions need further development within the subject and we may need to provide better-targeted self-instructional material. Online learning is both technology and pedagogy. In retrospect, the application of Action

Learning was not done well due to the irregular student attendance at the face-to-face meetings and the lack of use of online forum early in the semester. We also need to better manage the negotiated project, especially in its early stages.

The online forum can help us share information, provide support and/or exchange views on issues and strategies related to using online learning. However, subject tutors must illustrate benefits of using the forum to the students early in the semester and will likely need to expend significant effort fostering online communication between participants. Aspects of the Action learning cycle need assessment and we must better align the role of the discussion forum with what the students need to do to fulfil their role within the AL cycle. Student use of the online forum later in the semester, and at times during the semester, illustrated how useful it could be to providing students with support, information and/or different conceptions of online learning. The option of participating online when the demands of the student's workplace interfere with their study is the type of flexibility we must maintain, but nonetheless, use more effectively.

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